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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PAUL JOSEPH BERLOWITZ, ROBERT JAY WITTENBRINK,
and TAPAN CHAKRABARTY

Appeal 2009-004387
Application 10/086,775
Technology Center 1700

Decided: March 29, 2010

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and
ADRIENE LEPIANE HANLON, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1, 5-10, and 12-14. We have jurisdiction under 35 U.S.C. § 6.

Appellants claim a method for reducing particulate emissions to a level 53% to 91.5% lower than that obtained with Swedish Class I Diesel

Fuel which comprises combusting an emulsion of hydrocarbon fuel and water wherein the fuel comprises a Fischer-Tropsch (FT) fuel in which emulsion the hydrocarbon particles are substantially uniform in size and in the range of about 0.1 to 1.0 microns (claim 1). Appellants also claim a liquid fuel composition comprising an emulsion of FT fuel in water wherein the fuel in the emulsion has substantially uniform fuel particle sizes predominantly of 1 micron or less (claim 10).

Representative claims 1 and 10 read as follows:

1. A method for reducing particulate emissions during combustion in an engine of a hydrocarbon fuel to a level 53% to 91.5% lower than that obtained with Swedish Class 1 Diesel Fuel combusted under the same conditions in an engine which comprises combusting in the engine an emulsion of a hydrocarbon fuel and water containing a non-ionic surfactant and mixtures thereof wherein the fuel is a Fischer-Tropsch (FT) derived hydrocarbon or a mixture of a FT fuel and a conventional fuel and in which emulsion the hydrocarbon particles are substantially uniform in size and in the range of about 0.1 to 1.0 microns and wherein said emulsion is a hydrocarbon-in-water emulsion.

10. A liquid fuel composition comprising an emulsion of FT derived fuel in water and containing a non-ionic surfactant or mixtures thereof wherein the fuel in the emulsion has substantially uniform fuel particle sizes predominantly of 1 micron or less and the emulsion has a viscosity of above about 50 mm²/sec at 20°C.

The reference set forth below is relied upon by the Examiner as evidence of obviousness:

Wipo (WO '025)

WO 99/63025

Dec. 09, 1999

The Examiner rejects method claims 1, 5-9, 13 and 14 under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. The Examiner considers the independent method

claim range 53% to 91.5% as lacking support in the original disclosure and therefore failing to comply with the written description requirement.

The Examiner rejects all appealed claims under 35 U.S.C. § 103 (a) as being unpatentable over WO '025. The Examiner finds that "WO teaches that the droplets are 10 microns or less, and this teaching suggests a particle size of 0.1 to about 1.0 micron" and concludes that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have optimized the particles size through routine experimentation for the best results" (Ans. 5).

THE § 112 REJECTION

Appellants state that their Specification and drawing disclose 53% lower emissions at low load conditions and 91.5% lower emissions at medium load conditions, and the Examiner does not contend otherwise. Appellants argue that this disclosure would convey to an artisan the method claim range 53% to 91.5%, thereby satisfying the written description requirement. This argument is expressed by Appellants as follows:

The difference in the results obtained, 53% lower emissions and 91.5% lower emissions than Swedish Class I Diesel fuel, is not a consequence of there being any difference in the emulsified FT fuel employed, but rather, in the conditions at which the test was performed, the 53% reduction being secured at low load and the 91.5% reduction being secured at medium load.

Diesel engines run under varying loads. Thus a diesel engine could and does run at different load conditions at different periods of time. Demonstration of 53% reduction in particle emissions at one load and demonstration of 91.5% reduction in particle emissions at a different load should fairly convey to those skilled in the art that operation of a

diesel engine at different load conditions would be expected to result in a reduction in particulate emissions in the range of 53 to 91.5%, based on the teaching of the two examples presented in Tables 1 and 2. That is, a reduction in particulate matter emissions in the range between the two end points established would be expected. It cannot be maintained, as attempted by the Examiner, that the points between 53% and 91.5% are not supported.

(Br. 8, paras. 1-2).

The Examiner responds to Appellants' argument with the following rebuttal:

Appellant is comparing the same fuel at different loads to obtain the claimed percentages and by doing so is claiming a range that does not exist. It is clear from the data that there is a 53% reduction at a low load and a 91.5% reduction at a medium load; however, there is no support for any value between these data points and the data points are shown as individual values and not as a range. Furthermore, there is nothing in the specification to suggest that there is a range of emission reduction under any conditions.

(Ans. 6, first full para.).

The Examiner's position is not well taken. As rationally argued by Appellants, the disclosure of 53% reduction at low load and 91.5% reduction at medium load would reasonably convey to an artisan a reduction in particulate emissions in the method claim range of 53% to 91.5% since it is known that diesel engines run at different load conditions at different periods of time. The Examiner's contrary opinion seems to be based on the belief that an applicant must describe exactly the claimed subject matter. Such a belief is incorrect. The test for compliance with the written description requirement is whether the disclosure reasonably conveys to an artisan that

the inventor had possession of the claimed subject matter. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562-63 (Fed. Cir. 1991).

Under these circumstances, we cannot sustain the Examiner's § 112, first paragraph, rejection of claims 1, 5-9, 13, and 14.

THE § 103 REJECTION

We will sustain this rejection based on the findings of fact, conclusions of law, and rebuttals to argument expressed by the Examiner in the Answer. Indeed, the Examiner's obviousness conclusion is supported by the well established legal principle that a prima facie case of obviousness is established when a prior art range encompasses a somewhat narrower claimed range, as here. *See In re Peterson*, 315 F.3d 1325, 1329-30 (Fed. Cir. 2003). We add the following comments for emphasis.

Initially, we observe that Appellants elect to have the patentability of method claims 1, 5-9, 13 and 14 considered separately from the patentability of composition claims 10 and 12 (Br. 9). Accordingly, in resolving the patentability issue before us, we will focus on representative method claim 1 and representative composition claim 10.

Concerning the rejection of method claim 1, Appellants concede that the WO '025 disclosure of 10 microns or less embraces the claim 1 range of 0.1 to 1.0 micron but urge that one would expect the same results throughout the prior art range of 10 microns or less (Br. 12). Appellants argue that, contrary to this expectation, the example on page 23 of the WO reference shows reductions in particulate emissions ranging from about 6% to about 44% (Br. 12-13) whereas Examples 1 and 2 from their Specification show unexpectedly lower reductions in particulate emissions within the claim 1

range of 53% to 91.5% (Br. 14). Thus, it is Appellants' argument that hydrocarbon particle sizes in the claim 1 range of about 0.1 to 1.0 microns "resulted in an unexpected further lowering of the particulate emissions" (*id.*).

This argument is unpersuasive for two reasons.

First, as correctly indicated by the Examiner (Ans. 7-8), the example at pages 23-24 of the WO reference does not disclose a comparison involving FT fuel emulsions specifically. Appellants concede that specific results for FT emulsions are not individually recorded (Br. 12-13). Nevertheless, Appellants assume that the data reported in the WO reference are relevant to a comparison of emulsified and non-emulsified FT fuels (*id.*). This assumption lacks support in the record before us.

Second, as also correctly indicated by the Examiner (Ans. 7), Appellants' alleged showing of unexpected results is not commensurate in scope with the argued claims on appeal. For example, the particulate emissions reductions required by claim 1 are based on the performance in Example 1 of a specific subclass of hydrocarbon particles which averaged 0.7 microns with 95% below 1 micron in size (*see* Spec. 7, Ex. 1) whereas claim 1 encompasses a broad class of any hydrocarbon particles which are uniform in size and in the range of about 0.1 to 1.0 microns.

Regarding composition claim 10, Appellants argue that the 10 micron or less range disclosed by the WO reference would not have suggested the claim limitation "substantially uniform fuel particle sizes predominately of 1 micron or less" (Br. 15-16). As support for this argument, Appellants state that the reference involves macro emulsions which are different from the micro emulsions of their invention (*id.* at 16).

This argument also is unpersuasive.

Appellants do not identify any support for their belief that the WO reference is limited to macro emulsions. Likewise, Appellants identify no support for the belief that their invention is limited to micro emulsions. Moreover, as previously explained, Appellants concede that the reference range of 10 microns or less embraces the claimed range of 1.0 micron or less (Br. 12). Under these circumstances, we find no convincing merit in Appellants' argument that the reference range would not have suggested the claimed range.

For the reasons set forth above and in the Answer, we sustain the Examiner's §103 rejection of all appealed claims as being unpatentable over WO '025.

CONCLUSION

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a) (2008).

AFFIRMED

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